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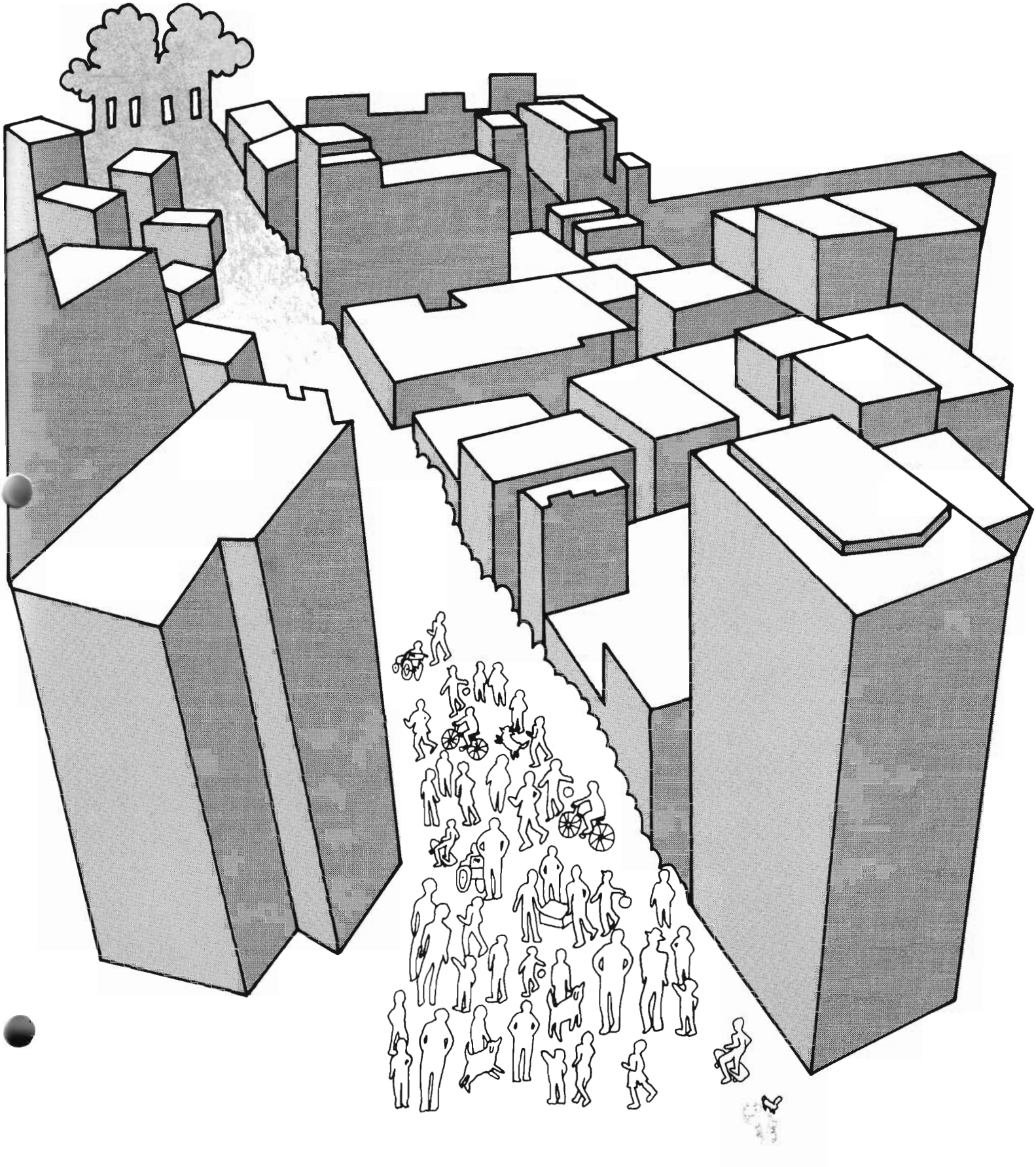


Urban Bicycle Trails: Use Patterns and User Preferences

by Paul H. Gobster

Bike trails are costly undertakings. Even when lands are owned or can be acquired for a low fee, trail development costs can make any planner think twice about whether potential use will justify expenditures. At the same time, when funds are earmarked for the maintenance of existing trails, trail managers need to be sure that the actions they take will help to satisfy current users. In both cases, it makes good sense for planners and managers to find out as much as possible about trail use and users before a plan or action is implemented.

Use considerations are especially important in the development and maintenance of urban bike trails. For example, by the time the North Branch Bicycle Trail in Chicago was completed (1985), the development of highway overpasses, fencing and other necessary preparations had stretched the cost of the 20-mile trail to over $2.6 million. At $150,000 per mile, planners had a lot more riding on the trail than just bicycles! The North Branch Trail has since become a well-known success, both to those who use it and to the staff of the Forest Preserve District of Cook County who plan for and manage the trail. So much so that the Forest Preserve District continues to expand its bike trail system to other areas in the County.

USDA Forest Service

A 1979 survey indicated that bicycle trails received the highest satisfaction rating of all forest preserve facilities.

Case Study

The North Branch Bicycle Trail presents an interesting case study of how planners and managers can collect and apply user information to improve urban forest recreation opportunities. In cooperation with the U.S. Forest Service's Chicago urban forest recreation research project and the Chicagoland Bicycle Federation, the Forest Preserve District of Cook County implemented two use information gathering techniques—the traffic counter and the social survey. Together, these tools helped provide the District with useful data on use patterns and user preferences.

Use Patterns

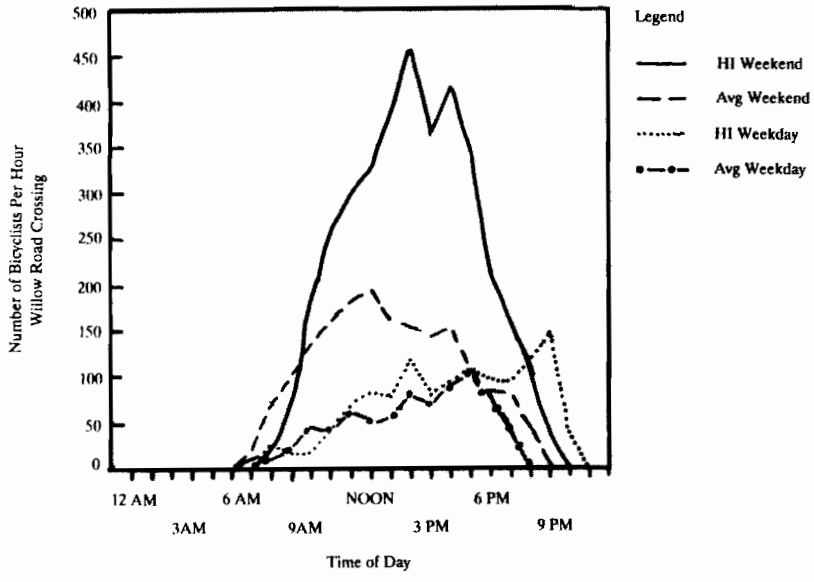
In June of 1987, one traffic counter was installed along a northern portion of the trail to monitor use levels. The $1100 counter records the number of crossings in 15-minute intervals and stores this information on a tape. Less expensive counters ($250–$300) are available which record only cumulative numbers of bicycles and must be regularly monitored if more time-specific information is required.

Trail use levels, time-of-day use and weekday-weekend differences have already provided a solid base of information for the Forest Preserve District. Figure 1 illustrates the range in use over four selected summer days. On nice summer Sundays, North Branch Trail use can easily exceed 3000 cyclists passing the traffic counter per day. During the peak weekend hours of 2–5 p.m., use along the trail approached 500 cyclists per hour on one especially busy day. This amounts to one cyclist crossing the traffic counter every seven or eight seconds. Put another way, a cyclist taking a 15-minute rest along the trail during a peak use time would see no fewer than 100 cyclists passing by in either direction.

Weekday use was substantial but not nearly so dramatic. The highest recorded weekday use

was 1190 cyclists on Tuesday, August 11, 1987, with a high hourly peak of 150. On an average summer weekend, total use was around 1700 users per day; average summer weekday use was around 750. Besides the obvious weekend-weekday differences in total use, there is a difference in distribution of use over the day. On weekends, mid-afternoons were the highest use times on the trail, while weekday use showed that late afternoon and evening were major use times. On some weekdays, the highest use occurred just prior to sundown, the time District Preserves and trails close. Peak use hours on average weekdays often approach 50 percent of the use level of peak use hours on average weekends.

Figure 1
North Branch Bike Trail Daily Use Distribution
Summer, 1987



Use levels remained fairly stable throughout the summer months and began to dip in mid-September with the opening of some schools and the onset of lower temperatures. With continued monitoring, it will be possible to develop a better understanding of how use changes over time. A related article by Dwyer in this issue explains how managers can effectively employ this information to predict use levels on the basis of day, season and weather changes.

User Profile

A survey of 434 North Branch Bike Trail users on a summer Sunday provided additional information about trail use for planning and management. Short questionnaires were distributed at two points along the trail on Sunday, July 20, 1986, by members of the Chicagoland Bicycle Federation. The questionnaires were printed by the Forest Preserve District on 5½-in. × 8½-in. cardstock and could be quickly filled out by cyclists waiting for the light to change at street intersections. Most cyclists were happy to offer information about their use and impressions of the trail, making the on-site questionnaire an effective and inexpensive means of obtaining user input.

Basic social-demographic information revealed that 62 percent of the randomly sampled survey respondents were male. The dominant age class (32 percent) was between 30 and 39, but respondents ranged in age from nine to 65 years. Bicyclists tended to travel in small groups, most (51 percent) riding in pairs and only 5 percent of respondents traveling in groups of over four persons. Trips averaged about 2.5 hours, but ranged from less than an hour to over eight hours in length.

A very high proportion (97 percent) of users saw the North Branch Trail as a recreational trail for pleasure riding. A weekday survey might have revealed a greater proportion of bicyclists using the trail to commute to work, but the traffic counter data and counts by the Forest Preserve District at other points along the trail showed low num-

bers of weekday riders during the 7–9 a.m. commuting period. There may be other sections of the trail where commuting is a more important use, but overall use of the trail for transportation is probably minor.

Another survey question confirmed that North Branch Trail use was primarily recreational in nature by showing a large percentage (40 percent) of users drove to the trail via automobile. It appeared that many people saw the North Branch Trail as a recreational facility to come to and enjoy, rather than a convenient trail for getting from one place to another. In fact, examination of origin-destination responses indicated that at least 80 percent of the riders used the trail as a "loop," exiting at the same point where they got on the trail.

User Preferences

The survey data on user preferences is summarized in Figures 2 and 3. When asked in an open-ended question what riders liked about the North Branch Trail, the most commonly cited reason, mentioned by 37 percent of the respondents, was the trail's scenic beauty. The smooth, paved trail surface was mentioned second most frequently (24 percent of the respondents). Other frequently mentioned positive comments included the separation from auto traffic (10 percent), the surrounding trees and forest environment (13 percent), good trail maintenance (8 percent), peace and quiet (7 percent) and the shade and coolness (6 percent) afforded by tree-lined sections of the trail. It was clear from these responses that trail riders saw the natural environment and the design and maintenance of the North Branch Trail as important aspects of their recreation experience, an experience that made it unique from riding on the city streets.

Figure 2
North Branch Bike Trail
User Preferences

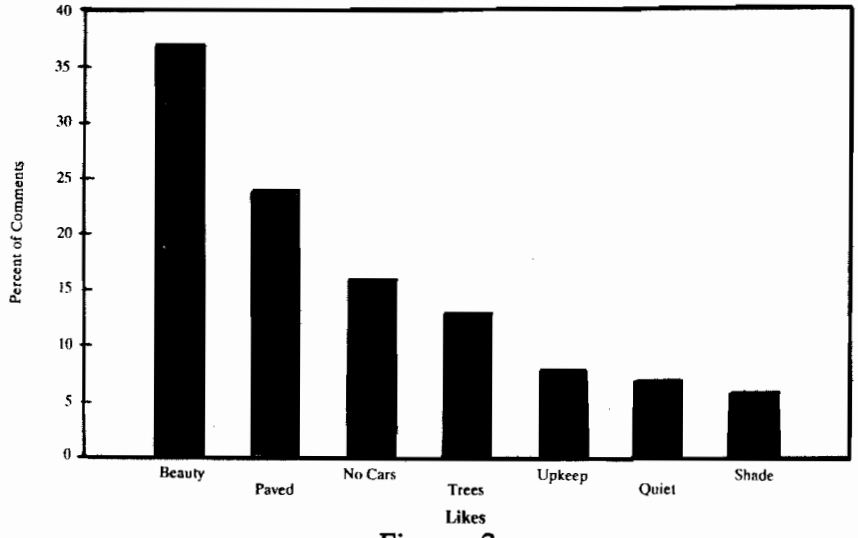
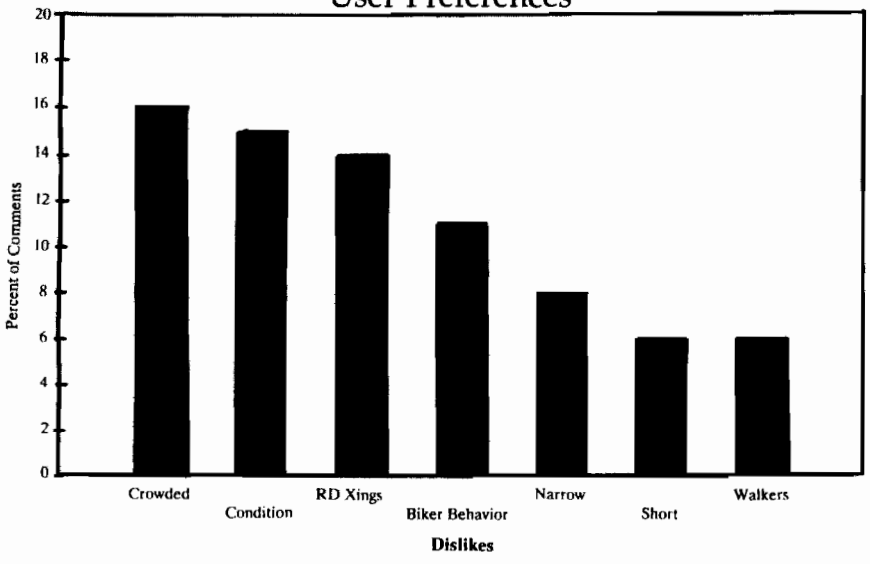


Figure 3
North Branch Bike Trail
User Preferences



People found fewer things they disliked about the North Branch

Trail than things they liked. In fact, for this open-ended question there were nearly twice as many positive comments as there were negative ones. The most common negative comment, cited by 16 percent of the respondents, was that the trail was crowded. This was followed by comments about stretches of bad pavement (15 percent), conflicts between autos and bikes at street crossings (14 percent), inconsiderate bikers (11 percent) and the trail being too narrow (3 percent), too short (6 percent) and having too many pedestrians (6 percent). From this analysis, it appears the majority of negative comments related to crowding and conflicts between users of the resource, and only secondly to the location and design of the trail itself.

These results are not surprising when compared to our previous research on the recreational use of Forest Preserve District areas. A general survey of Forest Preserve users in 1979 indicated that bicycle trails received the highest satisfaction rating of all Forest Preserve facilities. Another survey of Chicagoland bike trail users showed that in choosing a trail, the type of trail surface and scenic views were prime considerations.

Implications

Information obtained from use monitoring and the user survey has provided the Forest Preserve District of Cook County with data useful for managing the North Branch Trail and directions for planning future trail development. Use of the traffic counter to establish daily, seasonal and time-of-day use has shown managers when to expect high use levels. Sundays are especially busy times, where on a pleasant summer afternoon trail use can approach 500 bicyclists passing a given point per hour. Such use levels not only document the success of the trail but also show that current and future peak use may exceed the recreational "carrying capacity" of the trail. During these peak times, too many riders may serve to reduce bicyclists' satisfaction due to crowding and conflicts with other users.

In organized discussion sessions with bicycling groups since the survey, we have found that some bicyclists no longer use the trail or changed their former travel patterns to avoid the afternoon crowds. If future monitoring reveals an increased number of these peak Sundays, it may be necessary for planners and managers to develop alternative trails, encourage riders to use other nearby trails or suggest that riders change their use to Saturdays or non-peak hours on Sundays. Additionally, monitoring can clue managers as to what times are best to schedule maintenance and patrolling of trails.

A use monitoring program would be advantageous to managers of all bike trails. Monitoring can be especially useful to detect seasonal and yearly use trends, and to chart user responses to management actions such as trail resurfacing and new trail development. Monitoring trails on a regional scale would enable planners to find out use distribution and levels throughout an area. This could aid in deciding where to concentrate future efforts, for example, to work towards linkages with other recreational bike trails or to mass transit facilities.

The cost of a traffic counter is relatively inexpensive when compared to the development of the trail itself and related facilities, and provides hard data for planners and managers who could often use such information to document budget needs. In some cases, trail managers might even be able to borrow traffic counters from their local highway department for periodic assessment of trail use levels. Only a slight, temporary modification of the counter is required to register bicycle use.

Use monitoring is particularly effective when it is combined with survey research such as in the North Branch Trail study. Use levels showed peak Sunday uses. These levels, combined with significant numbers of survey respondents commenting that the trail was crowded and that their enjoyment was affected by inconsiderate bikers and non-bike trail users, let managers know more definitely at what point use-related problems are likely to occur.

Additionally, use monitoring and survey responses on the North Branch Trail showed that use was dominantly recreational in character, and that the trail

probably does not receive much use as a transportation route. These findings indicate that trails of this type are a special recreation resource which for a significant minority there are few substitutes. It is likely that certain groups, such as older adults and families with young children, would not take to the streets for bicycle recreation if bike trails were not available.

In fact, one of the survey questions revealed that if the North Branch Trail were not there, 17 percent of the respondents would not ride a bike at all. For trail planners, some trails like the North Branch should be geared expressly for recreational users because they provide this unique experience, a type of experience that for a large segment of the bike riding population is not available elsewhere.

As a recreational trail, a high quality natural environment is an important part of the recreation experience. People ride the North Branch Trail to enjoy the scenic beauty of the trees and surrounding forest, the quiet, sounds of nature, the shade and other experiential aspects of the natural environment often lacking in other types of bikeways. Managers can enhance the recreational experience of bikeways by planting trees and bringing other elements of nature into the bikeway corridor.

Maintenance is also important. Riders are keen on the paved character of the North Branch Trail, some stretches of which were recently paved. And because of the overall high quality of the trail, rough parts were quickly noticed and commented upon. While paving and consistent trail maintenance can add significantly to the costs of operating a bike trail, for many riders this is a very important attraction to such a trail.

Finally, alignment of recreational bike trails with respect to auto traffic and street crossings poses a major challenge for trail designers, especially in urban areas. Safe crossings are imperative for busy streets and highways, and separation of bikeways from auto routes is important. In some cases, riders on the North Branch Trail commented that even though the trail was physically separated from roads and highways, the noise and visual presence of automobiles detracted from their recreational experience. In cases such as these, trail planners may be able to ameliorate this problem through trail alignment and the screening of roads with vegetation.

Conclusions

Our study of the North Branch Bike Trail documented use patterns and identified user preferences using relatively simple and inexpensive techniques. The data we collected showed the trail receives a high amount of recreational use and is well liked by bicyclists. Our findings also indicated the high recreational and aesthetic values of the North Branch Trail. Although these values are sometimes difficult to quantify in economic terms, if cyclists were willing to pay just one dollar per visit, given current summer use levels the Forest Preserve District would recoup the initial cost of trail development in just 2.5 years. This example serves to illustrate the value of recreational trails and might help justify their continued development.

The information we continue to collect on the North Branch Trail and on other areas within the Forest Preserve District is also helping planners and managers more effectively assess recreational opportunities and problems. We are currently expanding our bike trail research to the wider Chicago metropolitan area to find out more about what bicyclists prefer and how they choose bicycle trails. We at the Forest Service encourage planners and managers to apply these use assessment techniques in your own areas, and to contact us and share your experiences. We would be most willing to work with you where possible.

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